

## SETTING UP A MODEM POOL

1. Background. The NAVSUP Firewall INFOSEC Policy signed 5 February 1997 mandates site migration from individual PC modems to modem pools within two years. The purpose of this migration is to close the biggest back door threat to our internal networks. Firewall effectiveness will be negated if our back doors are not closed and locked together with the front door (firewall).

2. What is a Modem Pool? Very simply, it is a bank of modems available to users on the internal network for dial-out access to remote resources. When a user starts a software package that attempts to connect with a local modem, the modem pool intercepts the request and assigns that user the next available modem. If all modems are in use, the request is queued for the next modem returned to use by the pool. A server (PC) handles the tasks of allocating and controlling multiple modems from a central location. Modem pool usage is transparent to users.

3. Configuring the modem pool. Now that we know what a modem pool is, what is involved in setting up a pool? To answer this question, I talked with personnel from NAVICP-Philadelphia, who have had a modem pool in use for several years. After that, I spoke with two vendors who handle modem pool hardware and software to get an idea of the costs involved.

a. Server. First, you need to establish a server on your network that will control the modems.

1) Hardware. This server can be as small as a PC with an Intel compatible 486 CPU or better. You will need about 4.5MB of disk space for the server software and enough memory to efficiently handle your chosen operating system. Some sites may have excess PCs that can be used. Those sites receiving the Firewall Security System with the Pentium box and the BSDI operating system could quite possibly be getting a UNIX box and HP-UX operating system as future firewall upgrades. This will free up the Pentium box which could then be used as the modem pool server.

2) Software. The server software product used by NAVICP-P is LANSource's WINport. LANSource is a Toronto, Ontario, based company that is well established in this field. With WINport you can choose from a 32-bit Windows O.S. (either Windows NT 3.51, 4.0 or Windows 95), Novell NetWare 3.12-4.x, or DOS. WINport provides their proprietary LogView administrative utilities and a comprehensive security and management module.

b. Communication Ports. Next, you need enough serial ports to handle from 8 to 32 modems. This is accomplished with a product such as a DigiBoard PC X/e. This multi-port serial board installs in the server PC and provides connectors for some fixed number of modems (4 or 8 or 16).

c. Modems. The next logical consideration is the modem hardware. Here you have multiple choices, depending on what you already have available, or maybe how much room you can devote to the modem pool. First, you could use individual external modems. This choice will require the most space for your solution. Next, you could use rack-mountable modems that provide multiple modems in each module (FMSO uses both dual and quad modems on their access servers). A third choice is a piece of hardware, named appropriately enough, a modem pool. This device provides either 8 or 16 modems in a single rack-mountable module.

d. Client Software. The last piece of the puzzle is the client software. WINport provides client support for the same O.S. base as the server, plus it also provides 16-bit windows support for Windows 3.x. Basically, the client software is a replacement for the comm.drv driver. The replacement driver intercepts local COM port modem requests and redirects to the server software. Any Windows communications package that does not try to replace this driver with its own may be used on the client. This list includes Microsoft Internet Explorer, Netscape Navigator, Procomm Plus, QModemPro, PCAnywhere, Carbon Copy, Lotus Notes, Hyperterminal, and many others.

e. Modularity. If the particular situation at a site requires that more modems be added to handle demand, expansion is simple. The WINport software can be upgraded to a 16-modem configuration. Addition of another DigiBoard and another bank of 8 modems completes the expansion.

#### 4. Cost.

a. Configuration. For this example I chose the WINport client/server software, DigiBoard multi-port serial board, and US Robotics modems. For the purposes of this working note, we shall configure a modem pool with 8 modems. NAVICP-P is using an 8-modem pool so I would think this size would serve most sites quite well. Other vendors products were not priced or researched, but vendor names appear at the end of this document.

b. Pricing. Vendors provided the following prices for their products:

LANSource client/server software (8 modems, unlimited users)	\$799
DigiBoard multi-port board (8 ports)	\$999
US Robotics MP/8 (8-line modem pool)	\$3095
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TOTAL	\$4893

This does not include the server PC, operating system, cabling, and telephone lines.

## 5. Vendors

a. SERVER SOFTWARE: LANSource, Artisoft, Shiva.

b. MULTI-PORT SERIAL BOARDS: Digi, Consensys (ChiliPORTS), Equinox, Comtrol (Rocket Port).

c. MODEMS: Almost any Class 1 or Class 2 compatible modem. A note on US Robotics: quad modems cost approximately \$3400 each (2 required), making it the more expensive option for the above pricing scenario; individual US Robotics Courier V. everything modems cost about \$289 each (8 required), for the least expensive option.

6. Other Options. Modem pools may also be used to provide facsimile (FAX) transmission and remote access service capabilities. It is important to consider the security aspects of your servers if you choose to add such services. Vulnerabilities exist that allow the possibility of modem session hijacking. Our consultants at Gartner Group have advised us to use separate servers to provide outgoing and incoming services.

7. Implementation. Each site ISSM should work with the Network Administrator and/or Network Security Officer to come up with a proposed solution for your site. Forward your proposal to the NAVSUP Command ISSM, SUP63D, for funding consideration as an INFOSEC initiative.

8. References. The following URLs are for web sites used to research this paper:

<a href="http://www.lansource.com">www.lansource.com</a>	LANSource
<a href="http://www.usrobotics.com">www.usrobotics.com</a>	US Robotics
<a href="http://www.shiva.com">www.shiva.com</a>	Shiva
<a href="http://www.equinox.com">www.equinox.com</a>	Equinox

[www.comtrol.com](http://www.comtrol.com)  
[www.dgii.com](http://www.dgii.com)  
[www.consensys.com](http://www.consensys.com)

Rocket Port  
Digi  
ChiliPORTS